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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,594	02/24/2004	Vijapurapu V. Anantharao	51410/P048C1	3204

27517 7590 03/22/2006

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EXAMINER

RAYYAN, SUSAN F

ART UNIT PAPER NUMBER

2167

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/785,594

Applicant(s)

ANANTHARAO, VIJAPURAPU V.

Examiner

Susan F. Rayyan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 17-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05242004, 02242002
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-29 are pending. Claims 17-29 have been withdrawn from consideration.

***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on February 24, 2004 was filed with the original filing papers. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

3. The information disclosure statement (IDS) submitted on May 24, 2004 was filed before first action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

4. Non-Patent Literature listed on the Information Disclosure Statements filed on February 24, 2004 and May 24, 2004 were provided with the original papers filed for application US 09/568,562 now US 6,711,595.

***Election/Restrictions***

5. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-16, drawn to garbage collection, classified in class 707, subclass 206.
  - II. Claims 17-29, drawn to data structure, classified in class 707, subclass 100.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as conducting garbage collection and subcombination II has a separate utility such as sharing data structures. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and the search required for group I is not required for the other group, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes is proper.

6. During a telephone conversation with Mr. Michael Fogarty on March 14, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**MPEP 2106 IV.B.2.(b)**

A claim that requires one or more acts to be performed defines a process.

However, not all processes are statutory under 35 U.S.C. 101. Schrader, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application.

Claim 1 teaches "creating a first map", "responding to an allocation request" and "responding to a deletion request" The claim language teaches creating a map of nodes representing free blocks, responding to allocation requests, responding to deletion requests by entering size and address of deleted blocks into the map. The claim language does not provide for storing results or does not display the results to a user. Therefore, the claim language provides no concrete or tangible results.

### **Claim Rejections - 35 USC § 103**

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-2,5 are rejected under 35 U.S.C. 103(a) as being unpatentable over G. Bowden Wise ("An Overview of the Standard Template Library",1995) in view of Benayon et al (US 6,816,956).**

As per claim 1 Wise teaches:

the allocator (at page 8, parag. 2-3) capable of allocating storage for a user STL object (at page 2, parag.1: containers) creating a first map containing a plurality of nodes representing a plurality of free blocks, each free block represented in the first map by a node in the plurality of nodes denoting... at page.2, section associative containers: stl-map and red/black trees.

Wise does not explicitly teach in a shared memory segment common to a plurality of processes, a size and an address of the free block, responding to an allocation request, and responding to a deletion request by entering a size and an address of a deleted block into the first map. Benayon does teach these limitations at fig.3, ref.no. 9, col.5, lines 34-35 (shared memory segment), at col.1, lines 58-66 and col.4, lines 40-55 (allocating shared memory and responding to allocation request) and at col.5, lines 38-41, col.7, lines 20-25, col.8, lines 38-41(size and address). It would have been obvious to one of ordinary skill in the art at the time of the invention to

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combine the cited references to reduce processing time at col. 1, lines 42-45.

As per claim 2 same as claim arguments above and Benayon teaches:

further comprising creating a second map containing a plurality of nodes denoting addresses of and pointers to the plurality of free blocks in the first map at col.5, lines 38-41.

As per claim 5 same as claim arguments above and Benayon teaches:

wherein the responding to an allocation request step comprises allocating memory from the shared memory segment at col.1, lines 58-61.

**Claims 3,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over G. Bowden Wise ("An Overview of the Standard Template Library",1995) in view of Benayon et al (US 6,816,956) and further in view of Challenger et al (US 6,446,183).**

As per claim 3 same as claim arguments above and Wise and Benayon do not explicitly teach further comprising coalescing the plurality of free blocks in the first map before entering the size and the address of the deleted block in the first map how ever Challenger does teach this limitation at col.1, lines 57-67. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to provide efficient storage at col.3, lines 7-8.



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As per claim 8 same as claim arguments above and Wise and Benayon do not explicitly teach wherein the first map is available to only one process of the plurality of processes and the one process is a writer process. Challenger does teach this limitation at col.4, lines 35-40. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to provide efficient storage at col.3, lines 7-8.

**Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over G. Bowden Wise ("An Overview of the Standard Template Library", 1995) in view of Benayon et al (US 6,816,956) and further in view of Dreszer (US 6,442,661).**

As per claim 4 same as claim arguments above and Wise and Benayon do not explicitly teach wherein the responding to an allocation request step comprises returning an address of a free block in the plurality of free blocks if the allocation request is for a storage size equal to or smaller than the free block. Dreszer does teach this limitation at col.1, line 65 to col.2, line 2. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to reduce memory fragmentation at col.1, lines 45-55.

**Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over G. Bowden Wise ("An Overview of the Standard Template Library", 1995) in view of Benayon et al (US 6,816,956) and further in view of Serlet (US 5,355,483).**

As per claim 6 same as claim arguments above and Wise and Benayon do not explicitly teach further comprising providing a snapshot of the shared memory segment. Serlet does teach this limitation at col.6, lines 39-67. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to provide efficient usage at col. 9, lines 4-5.

As per claim 7 same as claim arguments above and Wise and Benayon do not explicitly teach wherein the snapshot includes a total size of the shared memory segment. Serlet does teach this limitation at col.6, lines 39-67. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to provide efficient usage at col. 9, lines 4-5.

10. Claims 9-16 are rejected under the same rationale as claims 1-8 arguments.

**Contact Information**


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Rayyan whose telephone number is (571) 272-1675. The examiner can normally be reached M-F: 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Susan Rayyan

March 16, 2006

  
SHAHID ALAM  
PRIMARY EXAMINER